

Claims

What is claimed is:

1. A method for regenerating a NOx adsorber coupled with an exhaust of an engine, comprising:  
actuating throttle valve to a first position when regeneration of the NOx adsorber is desired, the first position operable to cause the regeneration of the NOx adsorber; and  
actuating throttle valve to a second position while regeneration of the NOx adsorber is still desired, the second position being a position that is more open than the first position and operable to regenerate a NOx adsorber.
2. The method of claim 1 wherein the first throttle position comprises a position being about 25% open.
3. The method of claim 1 wherein the second throttle position comprises a position being about 20% open.
4. The method of claim 1 wherein the first throttle position comprises a throttle position operable to control a lambda for an engine to about .85.
5. The method of claim 1 wherein the first throttle position comprises a throttle position operable to control a lambda for an engine to about .87.
6. A method for regenerating a NOx adsorber, comprising:  
determining a characteristic that is indicative of a desired regeneration of the NOx adsorber;

actuating the throttle to a first position for a first predetermined period of time, the first position being a position that is more closed than a steady state rich operation throttle position when the characteristic indicates that regeneration is desired, the steady state rich operation throttle position being a steady state desired throttle position operable to regenerate the NO<sub>x</sub> adsorber; and

actuating the throttle to a second position for a second predetermined period of time, the second position being a position more open than the first position and corresponding to about the steady state rich operation throttle position.

7. The method of claim 6 wherein the first throttle position comprises a position being about 25% open.

8. The method of claim 6 wherein the second throttle position comprises a position being about 20% open.

9. The method of claim 6 wherein the first throttle position comprises a throttle position operable to control a lambda for an engine to about .85.

10. The method of claim 6 wherein the first throttle position comprises a throttle position operable to control a lambda for an engine to about .87.

11. The method of claim 6 wherein the first predetermined period of time comprises a period of time relatively shorter than the second predetermined period of time.

12. The method of claim 11 wherein the first predetermined period of time comprises about 1.5 seconds and the second period of time comprises about 5 seconds.

13. A method for regenerating a NOx adsorber, comprising:  
determining a first characteristic that is indicative of a desired regeneration of the NOx adsorber;  
determining a steady state lambda operable to regenerate the NOx adsorber;

controlling the lambda of a gas that is transmitted to the NOx adsorber to a first lambda for a first predetermined period of time when the first characteristic indicates that regeneration of the NOx adsorber is desired, the first lambda being a lambda that is less than a steady state lambda that is operable to regenerate the NOx adsorber; and

controlling the lambda of the gas to a second lambda for a second period of time, the second lambda being a lambda corresponding to about the steady state lambda that is operable to regenerate the NOx adsorber.

14. The method of claim 13 wherein the first lambda comprises about .85.

15. The method of claim 13 wherein the second lambda comprises about .87.

16. An apparatus for regenerating a NOx adsorber, comprising:  
an intake air path for an engine;  
a throttle valve disposed in the intake path of the engine;

a throttle valve actuator coupled with the throttle valve and operable to move the throttle valve between a first position and a second position;  
at least one sensor coupled with the engine and operable to transmit at least one signal indicative of a desire to regenerate the NOx adsorber;  
and

a controller coupled with the at least one sensor to receive the at least one signal indicative of a desire to regenerate a NOx adsorber, the controller coupled with the throttle valve actuator and operable to transmit a first signal to the throttle valve actuator as a function of the at least one signal indicative of a desire to regenerate the NOx adsorber, the first signal operable to cause the throttle valve actuator to actuate the throttle valve to a first position for a first predetermined period of time, the first position being a position that is more closed than a steady state rich operation throttle position, and

cause the throttle valve actuator to actuate the throttle valve to a second position for a second predetermined period of time, the second position being a position corresponding to about the steady state rich operation throttle position.

17. The apparatus of claim 16 wherein the first throttle position corresponds to a position that causes the throttle to be about 20% open.

18. The apparatus of claim 16 wherein the second throttle position corresponds to a position that causes the throttle to be about 25% open.

19. The apparatus of claim 16 wherein the second throttle position corresponds to a position that causes air within the intake air path to have a lambda of about .85.

20. The apparatus of claim 16 wherein the first throttle position corresponds to a position that causes air within the intake air path to have a lambda of about .85.

21. The apparatus of claim 16 wherein the first predetermined period of time comprises a period of time relatively shorter than the second predetermined period of time.

22. The method of claim 21 wherein the first predetermined period of time comprises about 1.5 seconds and the second period of time comprises about 5 seconds.